

REMARKS

The Final Office Action mailed July 26, 2006 has been received and reviewed. Claims 27 and 73 through 80 are currently pending in the application. Claims 27 and 73 through 80 stand rejected. No claims are amended herein. Reconsideration is respectfully requested.

35 U.S.C. § 112 Claim Rejections

Claims 27 and 73 through 80 stand rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Applicants respectfully traverse this rejection, as hereinafter set forth.

Specifically, it was stated that the as-filed specification lacked support for the claim element “introducing at least one non-titanium layer over the at least one titanium layer and within the hole” as recited in independent claim 27. Applicants respectfully submit that support for this claim element may be found in as-filed claim 27 as well as the as-filed specification.

For example, as-filed claim 27 recited:

A method of establishing electrical contact between a semiconductor substrate and a semiconductor device, comprising:
covering said substrate with an insulating layer;
etching a hole through said insulating layer to said substrate;
partially plugging said hole with doped polycrystalline silicon;
depositing at least one metal layer within said hole over said doped polycrystalline silicon;
siliciding the at least one metal layer, wherein said step of siliciding said at least one metal layer comprises siliciding a titanium layer;
nitridizing said at least one metal layer, wherein the step of nitridizing said at least one metal layer comprises nitridizing a non-titanium layer; and
forming said semiconductor device over said at least one metal layer, wherein said step of forming said semiconductor device further comprises forming said

semiconductor device over said non-titanium layer.

(Claim 27, preliminary amendment)(emphasis added).

The original claim element “nitridizing said at least one metal layer, wherein the step of nitridizing said at least one metal layer comprises nitridizing a non-titanium layer” inherently describes “introducing at least one non-titanium layer over the at least one titanium layer.” Accordingly, the as-filed claim included support for the rejected claim language. Applicants’ addition of “introducing at least one non-titanium layer over the at least one titanium layer” to claim 27 merely restated what was inherently described in the as-filed claim. Reconsideration and withdrawal of the rejection is requested. Further, as applicants’ amendment did not necessitate the current ground of rejection, applicants respectfully request that the finality of the current rejection be withdrawn.

Support for the claim element is also found in the as-filed specification in paragraph [0032] which recites in part:

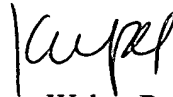
As another example, shown in FIG. 12A, **it is not necessary that the diffusion barrier 44 and the electrical contact enhancement layer 48 originate from the same material.** In this example, the electrical contact enhancement layer 48 results from the silicidation of a selectively CVD'd titanium layer. The diffusion barrier 44, on the other hand, comes from nitridizing a tungsten layer that is over only the poly plug 28. Similarly, the diffusion barrier 44 in FIG. 12B comes from nitridizing a tungsten layer that conforms to the container 26 and overlies the TiSi_x electrical contact enhancement layer 48.

(Specification, paragraph [0032])(emphasis added). Thus, the specification describes introducing at least one titanium layer 28 within the hole 26 over the doped polycrystalline silicon 28, introducing at least one non-titanium layer (tungsten layer 44) over the at least one titanium layer 28 and within the hole 26, siliciding the titanium layer and nitridizing the non-titanium layer (tungsten in the example of paragraph [0032]). Accordingly, sufficient support exists in the as-filed claims and specification. Reconsideration and withdrawal of the rejection is requested.

CONCLUSION

Claims 27 and 73-80 are believed to be in condition for allowance, and an early notice thereof is respectfully solicited. Should the Examiner determine that additional issues remain which might be resolved by a telephone conference, the Examiner is respectfully invited to contact Applicants' undersigned attorney.

Respectfully submitted,



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Date: August 16, 2006
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